

#### **4.16 VEGETATION**

Vegetation resources across the VPA would be affected by the management decisions of several resources. Direct adverse effects would primarily occur in the form of surface disturbance associated with development activities, vegetation manipulation treatments, and forage utilization. Oil and gas exploration and development requires the construction of roads, pipelines, wells, well pads, and compressors. Construction of recreation facilities, such as campgrounds and trails, and off-road vehicle travel would also disturb vegetated areas. Forage use by livestock, wildlife, and wild horses affect plant productivity and plant community structure and composition, having both beneficial and adverse impacts. Vegetation manipulation treatments and range improvement projects result in both beneficial effects in the long-term and adverse effects in the short-term due to surface disturbance. These activities alter plant communities and could eventually change the community's successional trajectory. Indirect impacts to vegetation associated with surface disturbance activities would also occur through processes such as soil loss and compaction, and noxious weed invasions. Indirect effects would also be beneficial through special designations such as ACECs.

This section describes the programmatic-level analysis of the potential effects to vegetation resources of the VPA as a result of land management decisions. Short-term direct and indirect impacts include acreage of surface disturbance, when possible, while long-term direct and indirect effects depend on the potential for a site to be revegetated or improved following surface disturbance.

##### **4.16.1 Impacts Common to All**

The Utah BLM Standards for Rangeland Health would apply under all of the alternatives . Summarized in Chapter 2, these management objective guidelines would ensure good site productivity, properly functioning riparian and wetland areas, vegetation communities composed of desired species, including native, and special status species when applicable, and compliance with State and Federal water quality standards. Site-specific monitoring and evaluation strategies would be implemented to measure the success of following the Standards for Rangeland Health. Approved activities that would result in short-term adverse impacts to these objectives would require rehabilitation and reclamation.

In addition to the Utah BLM Standards for Rangeland Health, vegetation would benefit from specific management guidelines, constraints or stipulations on use (see Chapter 2). Considerations would include monitoring to ensure compliance with permit conditions of approval and successful site reclamation. Proper livestock grazing timing and intensity would maintain or improve rangeland health. Special considerations during periods of drought would be made regarding livestock, wildlife, wild horses, recreation, and OHV use.

All management prescriptions would consider climatic conditions relative to an activity's effect on long-term rangeland productivity. The effect of management activities combined with wildland fire, drought, and natural disasters would also be considered. Resource degradation would be minimized through adaptive-management actions such as temporary livestock reductions or recreation limitations, as necessary.

Several resources incorporate management goals and objectives and resource-specific actions common to all alternatives that would beneficially affect the vegetation resource by either reducing surface disturbance, rehabilitating or restoring areas following surface disturbance, or

protecting areas from consumptive use, thereby minimizing impacts to vegetation. These resources consist of cultural, fire management, forage, lands and realty, livestock and grazing, riparian, soil and watershed, wilderness, ACEC and Wild and Scenic Rivers special designations, special status species, visuals, wildlife, and woodlands and forests. Actions common to all are summarized by resource in Chapter 2.

All of the alternatives allow for utilization increases in the event that rangeland health was being sustained or significant progress was being made towards rangeland health improvements. This increase in grazing would potentially cause adverse impacts to vegetation if not carefully managed and monitored. Impacts related to forage utilization are further analyzed in Section 4.9, Livestock and Grazing.

Land withdrawals would benefit vegetation in both the short- and long-term by reducing the potential for surface disturbance by mineral extraction activities. Alternatives A, B, and C would pursue locatable mineral withdrawal in the Green River Scenic Corridor in Browns Park (8,208 acres), relict vegetation areas in Lears Canyon (1,377 acres), and the Lower Green River ACEC (17,063 acres). Alternative D would pursue mineral withdrawals in the above areas, but with different acreages designated for withdrawal: in Browns Park (19,400 acres), Lears Canyon (3,600 acres), and Lower Green River ACEC (7,900 acres).

Special Designations that are currently managed would be maintained under all of the proposed alternatives. These include ACEC designation in Browns Park, Lears Canyon, Nine Mile Canyon, the Lower Green River, Red Mountain - Dry Fork, Pariette Wetlands, and Red Creek. These areas will not be discussed under alternative impacts. However, other impacts of special designations on vegetation will be discussed under alternative impacts.

All of the alternatives would allow harvesting of forest and woodlands. Impacts common to all of the alternatives would include the long-term beneficial impacts that would result from the reduction of excessive fuel loads within the treated areas, which would reduce the potential for catastrophic, stand-destroying wildland fire; allow public use of woodland products; make improvements to woodland habitat; and make improvements in woodland productivity by restoring woodland and forest health. Prescriptive fire or other treatments that would reduce the number of diseased and/or insect-infested trees in the resource area would also have long-term beneficial impacts to woodland health.

All of the alternatives would restore or rehabilitate up to 200,000 acres of sagebrush-steppe habitat over the life of the plan. These vegetation treatments would consider the Western Association of Fish and Wildlife Agencies (WAFWA) Guidelines for Management of Sage Grouse Populations and Habitats and State and Local Conservation Plans. These sage grouse habitat protection measures would directly benefit vegetation.

Any decisions involving spatial and seasonal buffers for raptor protection would generally benefit any surrounding vegetation. Long-term benefits to vegetation would occur, as nesting sites would be protected from surface disturbance associated with oil and gas leasing activities. Impacts due to paleontological and cultural decisions would not be different under the alternatives and are discussed under management common to all in Chapter 2.

#### **4.16.2 Alternative Impacts**

Management decisions that would affect vegetation are discussed below by alternative.

#### ***4.16.2.1 Impacts of Fire Management Decisions on Vegetation Resources***

##### ***4.16.2.1.1 Alternatives A, B, and C***

All prescribed fire activities are preceded by a burn plan. Alternatives A, B, and C would allow for 156,425 acres of prescribed fire per decade in the VPA. Target vegetation communities include pinyon-juniper, oak, aspen, and conifer. Fire would destroy plant material initially, resulting in an adverse, short-term impact on vegetation immediately following treatment. An increased risk of noxious weed infestations would also occur. However, as the vegetation recovers and plant communities return to a natural fire regime, long-term, beneficial effects on the vegetation resource would occur, except where invasive annuals such as cheatgrass have invaded. Plant communities could return to a more native mix of species. In some situations, seeding may be required in conjunction with prescribed fire to help prevent the establishment of invasive species. The reduction in hazardous fuels by the use of prescribed fire would also be beneficial in the long-term by reducing the risks of wildland fire. These beneficial impacts would be greater than those that would occur under Alternative D – No Action.

##### ***4.16.2.1.2 Alternative D – No Action***

Alternative D – No Action would allow up to 27,950 acres of prescribed burn treatments in the Book Cliffs RMP area and 22,950 acres of treatments, including prescribed burns, in the Diamond Mountain RMP area. As under the other alternatives, direct impacts on vegetation would be adverse immediately following treatment, but long-term impacts would be beneficial. However, the smaller amount of prescribed fire allowed under this alternative would produce less beneficial long-term effects than would the other alternatives.

Impacts to vegetation would also occur with fire suppression activities (e.g., surface disturbance caused by heavy equipment, the digging of fire lines, etc.). Invasive species could spread to these disturbed areas, resulting in adverse impacts to vegetation community composition.

#### ***4.16.2.2 Impacts of Forage Decisions on Vegetation Resources***

Forage utilization decisions would directly impact vegetation in both the short- and the long-term. Short-term direct adverse impacts include loss of vegetative cover and biomass, and trampling, while long-term adverse impacts would include reductions in plant productivity and regenerative ability, and increases in noxious weeds. The severity of adverse impacts also depends on grazing management (i.e., season of use) and climatic conditions (see Section 4.9 Livestock and Grazing). As explained in Chapter 2, the BLM Standards for Rangeland Health and Guidelines for Grazing Management would apply to forage utilization decisions.

##### ***4.16.2.2.1 Alternatives A, B, and C***

Under Alternatives A, B, and C, season of use changes, reduced livestock use, and improved livestock management strategies would all lead to improved vegetation conditions, which would have beneficial impacts on vegetation within the VPA. Other areas already meeting standards would be maintained; no other issues would be present or no other improvements would be needed.

Each alternative would allow for reductions in AUMs in the event that rangeland conditions are not being sustained or improved. This adaptive management strategy would generally benefit

vegetation in the long-term by allowing it to recover from grazing pressure. Alternatives A, B, and C would reduce utilization only after all other viable management options were considered, such as timing of use.

Alternatives A, B, and C would limit percent forage utilization on uplands and would, therefore, result in less adverse impacts to vegetation as compared to Alternative D – No Action (Table 4.16.1).

<b>TABLE 4.16.1. FORAGE UTILIZATION AND AUM ALLOCATIONS BY ALTERNATIVE</b>				
<b>Alternative</b>	<b>Forage Utilization Limit (%)</b>	<b><i>AUM Allocations</i></b>		
		<b>Livestock</b>	<b>Wildlife</b>	<b>Wild Horses</b>
A	50	137,838	104,871	2,940
B	60	139,163	104,871	0
C	50	77,294	106,196	3,960
D	NA	146,161	96,607	3,360

#### 4.16.2.2.2 Alternative D – No Action

In addition to the AUM allocations shown in Table 4.16.1, Alternative D – No Action also includes the following allocations. The Book Cliffs RMP allocates 1,123 AUMs for antelope in the Bonanza-Rainbow area. These AUMs are split among the Bonanza Wild Horse Herd area, which includes 239 AUMs inside the area and 502 outside the area. Some allotments have shown an upward trend and changes made to other allotments would result in an upward trend under Alternative D – No Action.

As mentioned above, each action alternative would allow for reductions in AUMs in the event that rangeland conditions are not being sustained or improved. This adaptive management strategy would generally benefit vegetation in the long-term by allowing it to recover from grazing pressure. Alternative D – No Action does not specify a utilization reduction, which would potentially result in greater impacts to vegetation than the action alternatives. Rangeland health complications such as noxious weed infestations could result from the inability to limit forage use. This would have indirect, adverse impacts on vegetation.

### **4.16.2.3 Impacts of Lands and Realty Decisions on Vegetation Resources**

#### 4.16.2.3.1 Alternatives A, B, and C

Decisions regarding land acquisitions to improve access would potentially increase impacts to vegetation in some areas, while potentially reducing the potential impacts in other areas. Alternatives A and C could result in impacts to vegetation along the White River near the mouth of Cowboy Canyon if access was acquired, resulting in more adverse impacts than under Alternative D – No Action. Adverse impacts from damage to vegetation and from the establishment of noxious weed invasions could occur through the subsequent increase in traffic through this area. This activity would not occur under Alternative B and it is not specified under Alternative D – No Action.

Acquisition of land or access in Bitter Creek and near the confluence of South and Sweetwater Canyons would occur under Alternatives A, B, and C, with potentially adverse impacts to vegetation in these areas. These activities are not specified under Alternative D, so the potential for adverse impacts from these management actions would be less than those under the action alternatives.

#### 4.16.2.3.2 Alternative D – No Action

In addition to the above -mentioned areas, Alternative D – No Action would pursue the withdrawal of 5,000 acres in developed and potential recreation sites, decreasing the potential for adverse impacts to vegetation in these acres, as compared to the action alternatives.

#### ***4.16.2.4 Impacts of Livestock and Grazing Decisions on Vegetation Resources***

Impacts to vegetation from livestock grazing depend partly on the seasonality and locality of the grazing activity. Seasons-of-use decisions incorporate these factors and differ by alternative under the broad grazing management strategies of: Phenology (Alternative A), Billed Use (Alternative B), Adjudicated (Alternative C), and Permitted (Alternative D – No Action). In general, impacts to vegetation are reduced when grazing occurs in the fall and winter, because plants are dormant and are not using energy for growth or reproduction. In contrast, grazing during the spring would have adverse indirect impacts on native plants by inhibiting productivity and reproduction, and increasing the likelihood of noxious weed expansion or establishment. Other direct, adverse impacts from livestock grazing include trampling, soil compaction, and soil erosion.

##### 4.16.2.4.1 Alternative A

Alternative A would employ a phenology-based grazing system, which would allow vegetation to recover by coupling forage use with dormancy and avoiding the growth periods of plants. Grazing would occur in Area 1 (Special Resources) only at the discretion of the VFO. Also, BLM lands acquired in the Nine Mile area would not be grazed. This would have less of an adverse impact on vegetation compared to Alternative D – No Action.

##### 4.16.2.4.2 Alternative B

Alternative B would have the highest potential for adverse impacts to vegetation. This alternative would be based on dates taken from permittee billing receipts and reflects the actual allotment use times, not necessarily the permitted use periods or the biologically best time with respect to vegetation growth periods. Combined with a 60 percent forage allocation, this alternative would result in the greatest impacts to vegetation. Grazing would occur in Area 1 and in the acquired Nine Mile area. Grazing use under Alternative B would often exceed the permitted timeframes, or overlaps grazing start or end dates, increasing the risk of adverse impacts to vegetation.

##### 4.16.2.4.3 Alternative C

Alternative C would incorporate the negotiation between permitted use periods and vegetation phenology, narrowing the time period of actual use as it occurs under permitting, to the most sound vegetation phenological period. In general, forage use would be limited to the fall and winter, except in Areas 2 and 3, reducing the potentially adverse impacts that could occur during

crucial growth periods. This alternative would result in fewer adverse impacts to vegetation when compared to Alternative D – No Action.

#### 4.16.2.4.4 Alternative D – No Action

Alternative D – No Action reflects current livestock grazing activities, as assigned on grazing permits. Potential impacts of this alternative would be similar to those under Alternative B, but would differ by the length of time grazing may occur in each area.

#### **4.16.2.5 Impacts of Minerals Decisions on Vegetation Resources**

The potential direct impacts from oil, gas, and coal bed methane production; combined hydrocarbon production (including special tar sands areas); Gilsonite and phosphate (non-energy leasable minerals) mining; and oil shale and mineral materials mining would occur as various forms of surface disturbance. Initial loss of vegetation would be followed by a greater potential for invasive and noxious weed establishment.

Of the six oil and gas development areas within the VPA (see Figure 19 RFD Areas), vegetation in the three most southern RFD areas is expected to be the most impacted by minerals decisions. It is anticipated that these three areas (East and West Tavaputs Plateau, and Monument Butte-Red Wash) would have the highest levels of oil and gas well development.

Surface disturbance associated with well construction would produce both short- and long-term adverse impacts to vegetation, potentially beyond the average well-life of 25 years. In the short term, surface disturbance would remove vegetation and increase the potential for noxious weed invasions. Other surface-disturbing activities associated with well development, such as road and pipeline construction, would produce additional impacts to vegetation. Following the initial short-term impacts, surface disturbance associated with oil and gas development would produce long-term impacts to vegetation. Successful reclamation is estimated to take up to 10 years, allowing time for site degradation and noxious weed infestations to continue. Revegetation is especially difficult with the desert shrub type, as soils are shallow and highly saline, and moisture availability is relatively low. Noxious weed invasions, notably cheatgrass, are likely in the sagebrush/perennial grass types, as these areas are often grazed by domestic livestock. Pinyon-juniper areas that have been chained and/or burned in the past are also highly susceptible to noxious weed invasions, and further disturbance would only increase the possibility of weed infestation. Russian knapweed is already a problem in the Diamond Mountain and Blue Mountain areas. Surface disturbance near noxious weed populations in these areas would likely allow for the weeds to spread. Other areas of concern include the Uintah Basin, Clay Basin, and Browns Park, where large populations of Russian thistle, halogeton, and cheatgrass are known to occur.

Acres of each vegetation type by leasing category are shown for each alternative in Tables 4.16.2 - 4.16.5. Note that acreage figures may differ slightly due to discrepancies between vegetation data and leasing data used in the minerals potential report. Also, GAP vegetation type categories listed below do not include values for Urban and Agricultural areas. Acreage figures under the categories Standard Stipulations and Timing and Controlled Surface Use reflect the total BLM administered areas within the VPA open to surface disturbing activities. These are not estimates of the total area disturbed within the VPA, but a comparison by alternative of the amount of area open to potential development within BLM administered areas within the VPA.

#### 4.16.2.5.1 *Alternative A*

<b>TABLE 4.16.2. ALTERNATIVE A – ACREAGE OF EACH VEGETATION COVER TYPE BY MINERALS LEASING CATEGORY</b>				
<b>Vegetation Type</b>	<b>Standard Stipulations</b>	<b>Timing and Controlled Surface Use</b>	<b>No Surface Occupancy</b>	<b>No Leasing</b>
Aspen	138	0	0	0
Badland/rock outcrop	47,190	10,442	4,258	2,451
Conifer	28,197	67,945	886	7,534
Desert Shrub	385,809	52,421	15,931	1,199
Mountain Shrub	19,936	51,475	920	937
Pinyon Juniper	165,502	264,380	12,129	39,281
Riparian	849	435	2,252	506
Sagebrush	320,109	122,393	26,723	18,428
Sand Bars	28	1	59	0
<b>TOTAL ACRES<sup>1</sup></b>	<b>967,758</b>	<b>569,492</b>	<b>63,158</b>	<b>70,336</b>
<sup>1</sup> The differences in total BLM vegetation acreages for each leasing category and total BLM acreages for oil and gas leasing are accounted for by those areas lacking vegetation (e.g., rocky areas, urban/developed areas).				

As shown in Table 4.16.2, the potential for impacts to vegetation associated with the total area open to potential development would be greater under Alternative A when compared to Alternative D – No Action. Under Alternative A, combined acreages totaling approximately 1,776,782 acres would be categorized as Standard Stipulations or Timing and Controlled Surface Use in the vegetation types listed above, a 14 percent increase over Alternative D – No Action. Estimated surface disturbance by individual well development would total 18,971 acres; 5,071 acres of which would be reclaimed within one year of completion of operations (as per stipulations in the Minerals Potential Report). This represents a 4 percent increase in potential acres disturbed by oil and gas development compared to Alternative D – No Action.

Approximately 137,217 acres of No Surface Occupancy and No Leasing BLM lands would not be impacted by oil and gas development, representing a 28 percent decrease in the total acres that would not be impacted by oil and gas development. Thus, area available for development is greater under Alternative A compared to the No Action Alternative, creating a greater potential for adverse impacts to vegetation.

Potentially adverse impacts to vegetation due to surface disturbance from combined hydrocarbon production activities in special tar sand areas would be less under Alternative A compared with the No Action Alternative. Combined hydrocarbon production activities with combined Standard and Timing and Controlled Surface stipulations would occur on approximately 252,665 acres under Alternative A, a 11 percent decrease compared to the amount of acres available under Alternative D – No Action (225,082 acres).

Alternative A impacts associated with prospecting, leasing, and development of phosphate would potentially occur on 87,724 acres open to leasing within the phosphate occurrence areas. Approximately 4 percent fewer acres are available for this activity under Alternative A compared

to the No Action Alternative, which would potentially result in fewer adverse impacts to vegetation from this activity under Alternative A. Gilsonite prospecting, leasing, and development would potentially occur on 172.4 miles of Gilsonite veins and on all BLM lands classified as open that contain additional veins. This area is 2 percent more than the area available under Alternative D – No Action, which would result in more adverse impacts to vegetation under Alternative A.

Within known oil shale leasing areas, 298,629 acres are open for leasing, representing a 3 percent increase compared to Alternative D – No Action. Adverse impacts to vegetation would be greater under Alternative A than what would occur under Alternative D – No Action.

Mineral material disposal could occur on 415,395 acres, a 7 percent increase compared to Alternative D – No Action. Therefore, adverse impacts to vegetation under Alternative A would be greater when compared to Alternative D.

#### 4.16.2.5.2 *Alternative B*

<b>TABLE 4.16.3. ALTERNATIVE B – ACREAGE OF EACH VEGETATION COVER TYPE BY MINERALS LEASING CATEGORY</b>				
<b>Vegetation Type</b>	<b>Standard Stipulations</b>	<b>Timing and Controlled Surface Use</b>	<b>No Surface Occupancy</b>	<b>No Leasing</b>
Aspen	138	0	0	0
Badland/rock outcrop	51,462	9,737	2,935	527
Conifer	54,676	41,828	871	7,187
Desert Shrub	395,431	49,773	11,099	908
Mountain Shrub	45,022	26,486	920	841
Pinyon-Juniper	199,586	244,997	8,063	28,656
Riparian	2,254	485	1,309	0
Sagebrush	340,275	117,138	16,174	14,378
Sand Bars	82	2	4	0
<b>TOTAL<sup>1</sup></b>	<b>1,088,926</b>	<b>490,446</b>	<b>41,375</b>	<b>52,497</b>
<sup>1</sup> The differences in total BLM vegetation acreages for each leasing category and total BLM acreages for oil and gas leasing are accounted for by those areas lacking vegetation (e.g., rocky areas, urban/developed areas).				

As shown in Table 4.16.3, Alternative B would designate approximately 1,579,372 acres as Standard Stipulations or Timing and Controlled Surface Use within the vegetation types listed above; a 7 percent increase over Alternative D – No Action. Surface disturbance associated with oil and gas activity on BLM administered land within the VPA would equal 19,033 acres, with 5,088 acres to be reclaimed within one year of completion of operations (as per stipulations in Minerals Potential Report). This represents a 5 percent increase in surface disturbance over the No Action Alternative. Potential oil and gas related impacts to vegetation under Alternative B would be greater than what would occur under the No Action Alternative.

Approximately 93,872 acres of No Surface Occupancy and No Leasing BLM lands would not be impacted by oil and gas development, representing a 50 percent decrease in total acres not

available compared to the No Action Alternative. Thus, area available for development is greater under Alternative B compared to the No Action Alternative, allowing for a greater potential for adverse impacts to vegetation.

Adverse impacts to vegetation from combined hydrocarbon activities in special tar sand areas with Standard or Timing and Controlled Surface Use stipulations would be 225,088 acres, compared to 225,082 acres under the No Action Alternative. The level of adverse impacts of Alternatives B and D on vegetation from this activity would be the same.

Under Alternative B, 87,454 acres would be open for prospecting, leasing, and development of phosphate within the phosphate occurrence areas, representing a 5 percent increase over Alternative D – No Action. Gilsonite prospecting, leasing, and development would potentially occur on 172.8 miles of Gilsonite veins and on all BLM lands classified as open that contain additional veins, representing a 3 percent increase as compared to Alternative D – No Action. Impacts associated with phosphate and Gilsonite prospecting activities would be greater under Alternative B, as compared to the No Action Alternative.

Within known oil shale leasing areas, 310,498 acres would be open for leasing, a increase of 7 percent compared to Alternative D – No Action; thus, potential adverse impacts to vegetation would be greater under Alternative B.

Mineral material disposal could occur on 420,941 acres under Alternative B, a 9 percent increase as compared to the No Action Alternative. Potentially adverse impacts to vegetation associated with mineral material disposal would be greater under Alternative B when compared to the No Action Alternative.

#### 4.16.2.5.3 *Alternative C*

<b>TABLE 4.16.4. ALTERNATIVE C – ACREAGE OF EACH VEGETATION COVER TYPE BY MINERALS LEASING CATEGORY</b>				
<b>Vegetation Type</b>	<b>Standard Stipulations</b>	<b>Timing and Controlled Surface Use</b>	<b>No Surface Occupancy</b>	<b>No Leasing</b>
Aspen	138	0	0	0
Badland/rock outcrop	38,337	11,739	2,826	11,760
Conifer	31,680	27,877	408	44,602
Desert Shrub	335,461	90,494	15,454	15,809
Mountain Shrub	19,117	35,434	1,110	17,607
Pinyon-Juniper	151,407	235,799	15,105	78,994
Riparian	877	67	1,398	1,706
Sagebrush	246,769	167,826	20,550	52,820
Sand Bars	26	0	44	18
<b>TOTAL<sup>1</sup></b>	<b>823,812</b>	<b>569,236</b>	<b>56,895</b>	<b>223,316</b>
<sup>1</sup> The differences in total BLM vegetation acreages for each leasing category and total BLM acreages for oil and gas leasing are accounted for by those areas lacking vegetation (e.g., rocky areas, urban/developed areas).				

As shown in Table 4.16.4, Alternative C would designate approximately 1,393,048 acres as Standard Stipulations or Timing and Controlled Surface Use, representing a 6 percent decrease as compared to Alternative D – No Action. Oil and gas development would impact 18,575 acres, 5,020 of which would be reclaimed within one year of completion of operations (as per stipulations in Minerals Potential Report). This represents a 3 percent increase under Alternative C in potential disturbances related to oil and gas production compared to Alternative D – No Action.

Approximately 280,211 acres of No Surface Occupancy and No Leasing BLM lands would not be impacted by oil and gas development, representing a 49 percent increase in total acres that would not be impacted by oil and gas development compared to the No Action Alternative. Thus, the potential for impacts would be less under Alternative C when compared to Alternative D – No Action.

The potentially adverse impacts on vegetation from combined hydrocarbon production activities within special tar sand area would occur on approximately 204,533 acres under Standard and Timing and Controlled Surface Use stipulations. Compared to Alternative D – No Action, Alternative C would have less of an impact on vegetation from this type of surface disturbing activity. Alternative C would have a 9 percent decrease in acres disturbed compared to the No Action Alternative.

Under this alternative, 64,041 acres would be open for prospecting, leasing, and development of phosphate with standard and special stipulations within the phosphate occurrence areas. This represents a 24 percent decrease over Alternative D – No Action, resulting in a lower potential for adverse impacts to vegetation under Alternative C. Gilsonite prospecting, leasing, and development would potentially occur on 171.7 miles of Gilsonite veins and on all BLM lands classified as open that contain additional veins. This equates to a 2 percent increase in area available for Gilsonite activities across the BLM administered areas within the VPA as compared to Alternative D – No Action. Thus, greater adverse impacts to vegetation would be expected.

Within known oil shale leasing areas, 292,191 acres would be open for leasing, representing a 1 percent increase in area compared to Alternative D – No Action. Impacts to vegetation would be similar under Alternative C compared to Alternative D – No Action.

Mineral material disposal could occur on 371,914 acres, a decrease of 4 percent in potentially adverse impacts to vegetation when compared to Alternative D.

#### 4.16.2.5.4 Alternative D – No Action

<b>TABLE 4.16.5. ALTERNATIVE D – NO ACTION—ACREAGE OF EACH VEGETATION COVER TYPE BY MINERALS LEASING CATEGORY</b>				
<b>Vegetation Type</b>	<b>Standard Stipulations</b>	<b>Timing and Controlled Surface Use</b>	<b>No Surface Occupancy</b>	<b>No Leasing</b>
Aspen	105	0	17	0
Badland/rock outcrop	38,123	14,470	10,955	531
Conifer	55,853	34,739	5,692	7,461
Desert Shrub	279,485	142,510	33,445	964

<b>TABLE 4.16.5. ALTERNATIVE D – NO ACTION—ACREAGE OF EACH VEGETATION COVER TYPE BY MINERALS LEASING CATEGORY</b>				
<b>Vegetation Type</b>	<b>Standard Stipulations</b>	<b>Timing and Controlled Surface Use</b>	<b>No Surface Occupancy</b>	<b>No Leasing</b>
Mountain Shrub	24,025	46,010	3,164	826
Pinyon-Juniper	231,749	180,799	39,012	29,033
Riparian	693	196	3,578	0
Sagebrush	265,607	164,587	38,976	14,503
Sand Bars	26	0	62	0
<b>TOTAL<sup>1</sup></b>	<b>895,666</b>	<b>583,311</b>	<b>134,901</b>	<b>53,318</b>
<sup>1</sup> The differences in total BLM vegetation acreages for each leasing category and total BLM acreages for oil and gas leasing are accounted for by those areas lacking vegetation (e.g., rocky areas, urban/developed areas).				

As shown in Table 4.16.5, Alternative D – No Action would classify approximately 1,478,977 acres in the vegetation types listed above as Standard Stipulations and Timing and Controlled Surface Use. Oil and gas development would potentially impact 18,212 acres, 4,886 of which would be reclaimed within one year. Approximately 188,219 acres of No Surface Occupancy and No Leasing BLM lands would not be impacted by oil and gas development under Alternative D – No Action.

Approximately 225,082 acres would be identified for combined hydrocarbon leasing in special tar sand areas with Standard and Timing and Controlled Surface Use stipulations.

Under Alternative D – No Action, 83,722 acres would be open for prospecting, leasing, and development of phosphate with standard and special stipulations within the phosphate occurrence areas. Gilsonite prospecting, leasing, and development would potentially occur on 168.3 miles of Gilsonite veins and on all BLM lands classified as open that contain additional veins. Additional mitigation actions would be required in critical deer and elk winter range to reduce short and long-term impacts to habitat.

Within known oil shale leasing areas, 290,484 acres would be open for leasing (if regulations are promulgated).

Mineral material disposal could occur on 385,864 acres.

#### **4.16.2.6 Impacts of Minerals Decisions by RFD Area**

Surface disturbances (acres) by RFD area within the BLM administered areas of the VPA are shown in Table 4.16.6 below.

**TABLE 4.16.6. SHORT- AND LONG-TERM MINERALS IMPACTS UNDER EACH ALTERNATIVE BY RFD AREA WITHIN BLM-ADMINISTERED LAND (ACRES)**

RFD Area	Alternative A		Alternative B		Alternative C		Alternative D	
	Short	Long	Short	Long	Short	Long	Short	Long
East Tavaputs Plateau	612	1,670	613	1,672	582	1,576	567	1,532
West Tavaputs Plateau	266	696	278	733	265	693	265	693
Monument Butte-Red Wash	4,013	11,099	4,016	11,107	3,993	11,036	3,874	10,672
Altamont-Bluebell	121	262	121	262	121	262	120	262
Tabiona-Ashley Valley	39	116	40	116	39	114	39	115
Manila-Clay Basin	21	56	21	56	21	56	20	53
<b>Subtotal</b>	<b>5,072</b>	<b>13,899</b>	<b>5,089</b>	<b>13,946</b>	<b>5,021</b>	<b>13,737</b>	<b>4,885</b>	<b>13,327</b>
<b>TOTAL</b>	<b>18,971</b>		<b>19,035</b>		<b>18,758</b>		<b>18,212</b>	

Source: Vernal Draft EIS Calculations 10 August 2004.

#### 4.16.2.6.1 Alternatives A, B, and C

Total short-term and long-term impacts from oil and gas surface disturbances to vegetation would be greater under all of the action alternatives when compared to Alternative D – No Action.

#### 4.16.2.6.2 Alternative D – No Action

Under Alternative D the potentially adverse impacts to vegetation caused by oil and gas surface disturbances would be the least of all the alternatives. Alternative B would potentially have the greatest adverse impacts on vegetation, followed by Alternatives A and then C.

#### **4.16.2.7 Impacts of Rangeland Improvements Decisions on Vegetation Resources**

Habitat enhancement projects include vegetation treatments, fencing, and water developments. Treatments may include mechanical, chemical, biological, and prescribed fire. While these activities produce short-term adverse impacts to vegetation associated with initial treatment or construction surface disturbance, long-term benefits to vegetation would also occur. Restoring natural vegetation communities, eliminating weeds, and fencing areas to control animal movement would enhance the vegetation resource and help achieve the desired mix of seral stages (see Chapter 2, Vegetation, Goals and Objectives). However, additional guzzlers and pipelines would not enhance vegetation in the long-term. Table 4.16.7 provides information on rangeland improvements for each of the alternatives.

<b>TABLE 4.16.7. COMPARISON OF RANGELAND IMPROVEMENTS BY ALTERNATIVE</b>				
<b>Alternative</b>	<b>Treatment acres (+/- impacted compared to the No Action Alternative)</b>	<b>Fencing miles (acres disturbed)</b>	<b>Guzzlers/reservoirs (acres disturbed)</b>	<b>Pipeline miles</b>
A	34,640 (- 5,750)	68.5 (34)	812	37.5
B	50,900 (+10,510)	368.5 (184)	1,165	51
C	45,860 (+5,470)	129.0 (65)	811	29.5
D	40,390	65.0 (33)	775	35

#### 4.16.2.7.1 Alternative A

Alternative A would result in fewer short-term impacts associated with vegetation treatments as compared to the No Action Alternative, but the long-term benefits would also be less. Potentially adverse impacts associated with fencing and pipeline projects would be similar to the No Action Alternative, but new guzzlers and reservoirs would result in greater adverse impacts to vegetation as compared to the No Action Alternative.

#### 4.16.2.7.2 Alternative B

All rangeland improvements under Alternative B would result in greater short-term impacts to vegetation, but vegetation treatments and fencing would have beneficial impacts on vegetation in the long-term when compared to the No Action Alternative.

#### 4.16.2.7.3 Alternative C

Vegetation treatments, fencing, and guzzlers/reservoirs would result in greater short-term impacts to vegetation as compared to the No Action Alternative, whereas short-term impacts associated with new pipelines would be slightly less.

#### 4.16.2.7.4 Alternative D – No Action

Rangeland improvements that include vegetation treatments and fencing would have short-term adverse impacts on vegetation caused by surface disturbances, but would have long-term beneficial impacts on vegetation by restricting livestock, restoring natural vegetation communities, and eliminating weeds. Guzzlers and reservoir development would tend to have long-term adverse impacts on vegetation by concentrating livestock in those areas, with subsequent disturbance and degradation of vegetation communities.

#### **4.16.2.8 Impacts of Recreation Decisions on Vegetation Resources**

The alternative recreation management decisions focus on whether to designate areas as SRMAs. In general, SRMAs would limit mining and OHV use, and benefit the vegetation resource by reducing the surface-disturbing activities related to these uses. However, long-term adverse impacts would occur with increases in access and visitors. As more people recreate in an area, trampling of the vegetation would occur and the chance for invasive, noxious weed introduction would increase.

4.16.2.8.1 Alternative A

Alternative A would manage a portion of the White River as an SRMA (24,183 acres), with the western portion closed to OHV use. Surface disturbing activities would be allowed in designated areas. Management in the eastern portion would limit OHV use to designated routes, and only allow surface disturbing activities in designated areas. This would reduce the potential for impacts to vegetation when compared to Alternative D – No Action, which would continue to provide for recreational use with minimal management.

Alternative A would designate 42,758 acres on Blue Mountain as an SRMA. Grazing and mining related impacts would be reduced from what would occur under Alternative D – No Action, but the increased visitation would result in the potential for long-term adverse impacts in the form of vegetation trampling and noxious weed invasions. The potential for impacts to special status species and habitat would be less than under Alternative D – No Action.

Alternative A would reduce surface disturbance impacts from mining and grazing compared to Alternative D – No Action, as these activities would be limited in the Fantasy Canyon activity management plan.

Alternative A would designate 273,486 acres in the Book Cliffs and 52,720 acres in Browns Park as SRMAs. The vegetation in the additional areas would experience fewer impacts from mining and grazing activities, but would potentially be affected more by the increase in visitors. Overall, beneficial impacts to vegetation would increase, as more areas receive special management consideration. Adverse impacts would likely decrease when compared to current management under Alternative D – No Action.

A comprehensive integrated activity management plan would be created and implemented for the Red Mountain-Dry Fork SRMA. This plan would maintain the current 24,285 acres under Alternative A, with emphasis on developing OHV and non-OHV trails in this SRMA. This action would increase overall visitation but would manage OHV use through designated routes, compared to Alternative D – No Action, which would continue to manage the area with minimal restrictions on OHV use. The overall effect would allow vegetation to reestablish itself, and have long-term beneficial impacts on vegetation resources.

The size of the Nine Mile Canyon SRMA would nearly double under Alternative A (81,158 acres) compared to Alternatives B and D – No Action (44,181 acres). Beneficial impacts to vegetation would increase compared to Alternative D – No Action.

Alternative A would develop up to 400 miles of non-motorized trails, disturbing/removing approximately 150 acres of vegetation (assuming an average 3-foot trail width along 400 miles). Short-term impacts would consist of vegetation loss, and noxious weeds would probably invade disturbed areas. This activity would disturb approximately 130 more acres than Alternative D – No Action, adversely impacting a greater amount of vegetation. This alternative would also develop/improve up to 800 miles of motorized trails. Assuming an average motorized trail width of 6 feet, approximately 580 acres would potentially be disturbed or removed, with impacts to vegetation similar to those described for non-motorized trails.

Alternative A would eliminate OHV use off of designated routes for big game retrieval. This activity is unspecified in Alternative D – No Action; therefore, Alternative A would result in less OHV-related adverse impacts to vegetation.

Alternative A would assess the placement of additional cabins. Short-term impacts to vegetation would occur as new cabins were constructed. Long-term impacts would include increased potential for noxious weed invasions in disturbed areas and the loss of vegetation equal to the size of the cabin footprint. Adverse impacts to vegetation would be greater than what would occur under Alternative D – No Action.

#### 4.16.2.8.2 Alternative B

Alternative B would continue to provide for recreational use in the White River area with minimal management. Existing conditions would continue. Impacts would be the same as Alternative D – No Action.

Alternative B would not designate Blue Mountain as an SRMA, potentially resulting in fewer human-caused impacts to vegetation such as trampling. However, more severe impacts associated with surface disturbance activities such as mining and grazing would continue. Impacts of Alternative B would be the same as those under Alternative D – No Action.

Impacts in Fantasy Canyon under Alternative B would be the same as Alternative D – No Action, as no activity management plan would be developed.

Alternative B would continue to manage Browns Park as an 18,474 acre SRMA, which provides for outstanding natural resources. Beneficial impacts would continue and be the same as under Alternative D – No Action.

Alternative B would improve/develop up to 800 miles of motorized trails, potentially impacting approximately 580 acres, with impacts similar to those described under Alternative A.

Alternative B would allow OHV use for big game retrieval for a 24-hour period following the punching of a tag. Impacts would likely be short-term. Long-term impacts could occur if the paths become frequently used, resulting in new recreational travel corridors.

Alternative B would assess the placement of additional cabins. Impacts would be the same as under Alternative A, and greater than Alternative D – No Action.

#### 4.16.2.8.3 Alternative C

Alternative C would also manage a portion of the White River as an SRMA (47,130 acres), with the western portion closed to surface disturbing activities and OHVs. Management in the eastern portion would limit OHV use to designated routes and only allow surface disturbing activities in designated areas. This would reduce the potential for adverse impacts to vegetation compared to those under Alternative D – No Action.

Alternatives C would also designate 42,758 acres on Blue Mountain as an SRMA. Grazing and mining related impacts would be reduced from what would occur under Alternative D – No Action, but the increased visitation would result in the potential for long-term adverse impacts in the form of vegetation trampling and weed invasions. The potential for impacts to special status species and habitat would be less than under Alternative D – No Action.

Alternative C would manage 69 acres in Fantasy Canyon as an SRMA to promote hiking and tours.

Alternative C would also designate 273,486 acres in the Book Cliffs and 52,720 acres in Browns Park as SRMAs. The impacts would be similar to Alternative A, except in Wolf Point and Bitter

Creek drainages, and the head of Sweetwater Canyon, where oil and gas would be managed as No Leasing, providing greater protection to vegetation. Alternative C would result in more beneficial impacts and fewer adverse impacts to vegetation compared to Alternative D – No Action.

The Red Mountain-Dry Fork SRMA would maintain 24,285 acres under Alternative C. The emphasis on developing OHV and non-OHV trails in this SRMA would increase visitation in the larger sized SRMA, resulting in more adverse impacts to vegetation in the form of trampling.

The size of the Nine Mile Canyon SRMA would nearly double under Alternative C (the same as Alternative A), with beneficial impacts to vegetation similar to those under Alternative A. The beneficial protection-related impacts to vegetation would be greater than those under the No Action Alternative.

Alternative C would develop up to 400 miles of trails, disturbing/removing approximately 150 acres of vegetation. Short-term impacts would consist of vegetation loss, and noxious weeds would probably invade disturbed areas. This activity would adversely disturb approximately 130 more acres than Alternative D – No Action.

Alternative C would eliminate OHV use off of designated routes for big game retrieval. This activity is unspecified in Alternative D – No Action, therefore, Alternative C would result in fewer OHV-related adverse impacts to vegetation.

Alternative C would not allow new cabin construction in the Book Cliffs. Alternative D – No Action does not specify this activity; therefore, the impacts to vegetation would be the same as under Alternative D – No Action.

#### 4.16.2.8.4 Alternative D – No Action

Alternative D – No Action would continue to provide for recreational use in the White River area with minimal management. Alternative D – No Action does not specify management for the Blue Mountain area. Impacts would be the same as described in Alternative B.

Alternative D would not develop Fantasy Canyon as an SRMA or promote recreation use in the area. There would be no beneficial protection-related impacts on vegetation in the area under this alternative.

Alternative D would continue to manage the Book Cliffs to provide unconfined recreation. Impacts under the action alternatives would be similar to this alternative. Browns Park would continue to be managed as an SRMA, but the 18,474 acres designated under this alternative is less than that proposed under Alternatives A and C.

This alternative would develop 55 miles of non-motorized hiking and/or horseback riding trails, resulting in adverse impacts to approximately 20 acres of vegetation from removal/surface disturbances (assuming an average 3-foot trail width).

Alternative D – No Action does not specify new cabin construction in the Book Cliffs; therefore, the impacts are not analyzed.

#### ***4.16.2.9 Impacts of Soils and Watersheds Decisions on Vegetation Resources***

##### ***4.16.2.9.1 Alternatives A, B, C, and D – No Action***

Decisions to reduce soil erosion would benefit vegetation by ensuring that adequate soil substrate exists for continued plant growth. Alternatives A and B would require erosion control strategies and design for slopes greater than 20 percent. Alternative C would not allow any surface disturbing activities on slopes greater than 40 percent. Thus, the adverse impacts to vegetation under these alternatives would be less than Alternative D – No Action, which only precludes mineral development on slopes greater than 40 percent.

#### ***4.16.2.10 Impacts of Special Designations on Vegetation Resources***

##### ***4.16.2.10.1 Alternatives A, B, C, and D – No Action***

Bitter Creek – Alternatives A and C would designate 71,000 and 147,425 acres, respectively, in part to protect high-value pinyon pines. This would have a greater beneficial impact on vegetation, as compared to the No Action Alternative, which would not designate the area as an ACEC. Alternative B also would also not designate an ACEC in the area.

Coyote Basin-Snake John Kennedy Wash – Alternatives A and C would designate 87,743 acres and 124,161 acres as an ACEC, respectively, primarily to protect wildlife. Alternative B would designate less area (47,659 acres) as an ACEC. Direct beneficial effects to vegetation would occur through noxious weed control. Also, vegetation would indirectly benefit from the special management attention to protect wildlife habitat. The action alternatives would beneficially affect vegetation as compared to Alternative D – No Action, which would not designate the area as an ACEC.

Four Mile Wash – Alternative C would designate 50,280 acres, which would benefit the vegetation in the area as compared to no ACEC designation under Alternative D. Under Alternative C, OHV use would be limited to designated routes, reducing surface vegetation disturbance.

Lower Green River – Designating the Lower Green River corridor as an ACEC under Alternative A and C (10,170 acres) would have more beneficial impacts on riparian vegetation, compared to Alternative D which would designate 8,470 acres along the river as an ACEC (see discussion in Riparian Resources, section 4.13). Alternative B would also not designate the Lower Green River, with no beneficial impacts to vegetation. Only Alternative C would designate the Middle Green River as an ACEC (6,768 acres), with more beneficial impacts on vegetation than Alternative D – No Action.

White River Corridor – Alternatives A and C would designate 17,810 and 47,130 acres, respectively, along the White River, which would reduce surface disturbing activities and have more beneficial impacts to vegetation as compared to Alternative D. Alternative B and D would not designate the area, so there would be no beneficial protection-related impacts in this area.

Nine Mile Canyon – Alternatives A and C would designate 48,000 acres and 81,169 acres, respectively, which would have greater protection-related beneficial impacts on vegetation when compared to Alternative D – No Action (44,181 acres designated). Surface disturbing activities would be reduced and special status plant species would be protected to a greater degree under

Alternatives A and C. Alternative B (44,181 acres) would have the same level of beneficial protection-related impacts as Alternative D – No Action.

Main Canyon – Only Alternative C would designate 100,915 acres in this area as an ACEC, with beneficial impacts on vegetation by reducing surface disturbing activities, when compared to Alternative D – No Action. Alternatives A and B would have the same impacts as Alternative D – No Action, which would provide no ACEC protection to vegetation in this area.

#### ***4.16.2.11 Impacts of Wild and Scenic Rivers Decisions on Vegetation Resources***

##### ***4.16.2.11.1 Alternative A***

Long-term beneficial impacts to riparian vegetation would be greater under Alternative A when compared to Alternative D – No Action for a segment of the White River that would be identified as suitable for designation as Wild and Scenic.

##### ***4.16.2.11.2 Alternative B***

Alternative B would only identify the Upper and Lower Green Rivers within the VPA as suitable for designation into the Wild and Scenic River System. The impacts of this alternative would be the same as Alternative D – No Action.

##### ***4.16.2.11.3 Alternative C***

Long-term beneficial impacts to riparian vegetation would be greatest under Alternative C when compared to Alternative D – No Action. This alternative would identify segments along the White River, Nine Mile Creek, the Middle Green River, Evacuation Creek, Bitter Creek, Upper Green River, Lower Green River, and Argyle Creek as suitable for designation into the Wild and Scenic River System. These management actions would have greater beneficial impacts on riparian vegetation than any of the other alternatives.

##### ***4.16.2.11.4 Alternatives D – No Action***

This alternative would only identify the Upper and Lower Green River within the VPA as suitable for designation into the Wild and Scenic River System. There would be no beneficial impacts on vegetation from Wild and Scenic River special designation management actions under this alternative.

#### ***4.16.2.12 Impacts of Travel Decisions on Vegetation Resources***

Road closures would tend to benefit vegetation by restricting access, reducing the chance of impacts to vegetation, such as trampling and noxious weed invasions. Prohibiting motorized access into an area would also prevent the development of undesignated access/spur roads and trails.

##### ***4.16.2.12.1 Alternatives A, B, and C***

Alternatives A and C would remove existing trails and roads and return habitat to its original condition when they no longer serve their permitted purpose or public interest, allowing for vegetation growth and reducing the potential for indirect adverse effects associated with allowed access. Long-term benefits to vegetation would include increases in diverse vegetation

communities and a reduction in disturbed areas suitable for noxious weed growth. Alternatives A and C would have more beneficial impacts as compared to Alternative D – No Action, as road and trail maintenance (except for OHV trails) or removal are unspecified under the No Action Alternative.

Alternative B would not obliterate roads. Potential impacts associated with open roads under Alternative B would be the same as Alternative D – No Action, which does not specify for road obliteration.

Alternatives A, B, and C would repair, maintain, or upgrade existing trails and roads in poor condition. This would benefit vegetation by reducing the chance of noxious weed invasions, as compared to Alternative D – No Action, which does not specify road and trail improvements.

Alternatives A, B, and C would also include less area open to OHV travel as compared to Alternative D – No Action, thus; impacts to vegetation overall would be less (A - 6,202 acres, B - 5,434, C- 5,434 acres open, compared to 787,859 acres under Alternative D). Impacts associated with OHV travel include damage to and loss of vegetation, and the spread of noxious weed seeds.

The number of acres that would be closed to OHV travel varies under each action alternative, but would be more than what would occur under the No Action Alternative, which would close 50,388 acres. Thus, adverse impacts to vegetation would be less under the action alternatives than under the No Action Alternative. Alternative C would close the greatest number of acres to OHV use (366,559 acres), with Alternative A closing 75,845 acres, and Alternative B closing 60,187 acres.

#### 4.16.2.12.2 Alternative D – No Action

The No Action Alternative would allow 787,859 acres to remain open for unlimited OHV use. Approximately 887,275 acres would be designated as Limited for OHV travel, while 50,388 acres would be closed to OHV use.

The management of newly permitted roads and trails, once their purposes have been served, are unspecified under this alternative. Also, the management of roads and trails that would cause resource damage remains unspecified under this alternative.

### ***4.16.2.13 Impacts of Visuals Decisions on Vegetation Resources***

#### 4.16.2.13.1 Alternatives A, B, and C

Areas managed as VRM Class I would potentially provide beneficial impacts to vegetation by preventing visually degrading surface disturbances. Alternative A would manage 67,357 acres as VRM I, and Alternative C would manage 148,260 acres under this VRM Class. Alternative B would manage 56,127 acres under VRM Class I than would Alternative D – No Action. Alternative B would manage the same acreage as VRM I as would the No Action Alternative, resulting in the same beneficial impacts.

#### 4.16.2.13.2 Alternative D – No Action

This alternative would manage 56,127 acres within the VPA as VRM Class I. Alternative C would have the most beneficial impacts on vegetation, with fewer beneficial impacts to

vegetation under Alternative A. Alternative B and D would provide the least potential benefit to vegetation from visual resource protection.

#### ***4.16.2.14 Impacts of Wild Horses Decisions on Vegetation Resources***

##### ***4.16.2.14.1 Alternatives A, B, C, and D – No Action***

Decisions for wild horse management would involve re-establishing herds and altering amounts of forage allocated for horses, resulting in direct, adverse impacts to vegetation from trampling, fencing, and grazing. Grazing pressure would vary by alternative, with Alternative B not managing for wild horses, and Alternatives A, C and D – No Action proposing herd re-establishment. Adverse impacts to vegetation would be less under Alternative B than under any of the other alternatives, as specific management and development for horses would not occur.

#### ***4.16.2.15 Impacts of Wildlife Decisions on Vegetation Resources***

##### ***4.16.2.15.1 Alternatives A, B, C and D – No Action***

Seasonal restrictions and limitations on surface-disturbing activities for the protection of wildlife would indirectly benefit vegetation. Alternatives A, B, and C would provide slightly more protection than Alternative D – No Action, as the No Action Alternative would only restrict minerals activities. Alternatives A and B would stipulate limits on the amount of surface disturbance per township (560 acres per township), further reducing the direct adverse impacts to vegetation when compared to Alternative D – No Action, under which new surface disturbances remain unspecified.

Sagebrush habitat reclamation or enhancement within crucial deer winter range under Alternative C would benefit this vegetation type, when compared to Alternative D – No Action (under which sagebrush habitat reclamation remains unspecified). Vegetation treatments in sagebrush communities would beneficially impact the development of the desired seral stages. Alternatives A and B would also reclaim disturbed sagebrush habitat areas, but at a lower ratio and producing fewer beneficial impacts to the vegetation than Alternative C, but more than Alternative D.

#### ***4.16.2.16 Impacts of Woodland Decisions on Vegetation Resources***

##### ***4.16.2.16.1 Alternative A***

Under Alternative A, up to 552,663 acres of forest and woodlands would be harvested or have vegetation treatments applied to reduce the risks of wildland fire. Forest and woodlands would be managed to maintain and restore biodiversity and reduce the occurrences of insect infestations, fire, and disease to levels normally expected in healthy forest and woodlands. Relict stands would be maintained for biological and genetic diversity. These management actions would have long-term direct and indirect protection-related beneficial impacts on vegetation resources by reducing the risks of wildland fire, and reducing the damage caused by insects and disease. Other beneficial impacts are described under Section 4.16.1 Impacts Common to All Alternatives. When compared to Alternative D – No Action, Alternative A would have more beneficial impacts on vegetation.

Woodland harvesting and associated access road and trail construction disturbances, and subsequent soil erosion would have direct and indirect, long-term adverse impacts on vegetation by increasing soil erosion rates and increasing the potential for noxious weed establishment. Applying best management practices to reclaim obsolete access roads and trails created for woodland harvesting, and reducing soil erosion caused by woodland harvesting would reduce adverse impacts to vegetation resources (and to vegetation productivity) to the short-term.

#### 4.16.2.16.2 Alternative B

Management actions under Alternative B would allow the harvesting of forest and woodlands before and after vegetation treatments to achieve desired future conditions. Up to 554,108 acres would be open to harvesting or vegetation treatments, and public harvesting would be allowed to achieve the greatest output of woodland and forest products. Similar to Alternative A, management actions would allow salvaging of dead, dying, diseased trees with the intent of promoting healthy forest and woodlands. These management actions would have long-term beneficial impacts on vegetation resources, when compared to Alternative D (which does not specify management actions for forest and woodlands), by reducing fuel loading and reducing the risks of wildland fire. The adverse impacts would be similar to those described under Alternative A.

#### 4.16.2.16.3 Alternative C

This alternative would allow harvesting or treatments on 552,663 acres (the same as Alternative A), with impacts similar to those described under Alternative A. Compared to Alternative A, Alternative C would have more beneficial impacts on vegetation resources.

#### 4.16.2.16.4 Alternative D – No Action

The No Action Alternative would allow up to 88,200 acres of forest and 200,100 acres of woodlands to be harvested or have vegetation treatments, which would have beneficial impacts on vegetation resources by reducing fuel loads and by reducing the risks of wildland fire. Adverse impacts would be similar to those described under Alternative A.

#### **4.16.2.17 Summary**

In general, the impacts from surface disturbance are directly related to vegetation impacts, therefore the alternatives with greater surface disturbances would have the highest impacts to vegetation resources. The greatest surface disturbance from oil, gas, and coal bed methane leasing would be due to Alternative B, followed by Alternatives A, D, and C, respectively.

Off highway vehicle use would be generally unrestricted under Alternative D, therefore direct adverse impacts would be greatest under this alternative, followed by Alternatives B, A, and C, respectively.

#### **4.16.3 Mitigation Measures**

Mitigation measures for vegetation resources would include:

- 1) seeding with native seed where surface disturbance occurs to limit the spread of noxious weeds. Treatments of weed infestations with chemical and mechanical means would be done as well;

2) reclamation of obsolete roads and trails to reduce soil erosion and subsequent loss of vegetation productivity.

#### **4.16.4 Unavoidable Adverse Impacts**

Unavoidable adverse impacts would occur to vegetation resources from road building, minerals development, and the construction of recreational facilities and trails.

#### **4.16.5 Short-term Use Versus Long-term Productivity**

Construction of roads and well pads with mineral development would provide short-term mineral use that could result in long-term degradation of vegetation resources. Areas converted to developed sites would lose the original vegetation and soil while being used for other resource purposes. Roads provide a pathway for invasive plant species to infest more remote areas, and improper rehabilitation and re-vegetation of well pads would also provide a route for invasive species area to spread.

#### **4.16.6 Irreversible and Irretrievable Impacts**

There could be irreversible and irretrievable impacts to vegetation resources in areas where invasive species are allowed to proliferate. Invasive species, particularly cheatgrass, can overtake areas and once established are difficult to remove, thereby causing irretrievable loss of productive vegetation resources. These noxious species result in the loss of biodiversity and can permanently alter vegetation communities.